PHASES OF PUNCTOGRAPHY

William B. Wait

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PHASES OF PUNCTOGRAPHY

IN RELATION TO

Visual Typography, Writing, Printing,
Bookbinding,

AND OTHER FEATURES.

BY

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G. W. B. Wait

PHASES OF PUNCTOGRAPHY

IN RELATION TO

VISUAL TYPOGRAPHY, WRITING, PRINTING, BOOKBINDING,

AND OTHER FEATURES.

The object of punctography is to produce raised characters formed of points, which, through the sense of touch, will serve as representations for the visual signs used in books, and which comprise letters, punctuations, accents, and a great variety of visual materials, used in every language and in every subject.

The things to be expressed by punctography are to be found in visual typography; and as each language has its own special typography, it follows that there are as many special typographies as there are languages. The number of modern languages having dictionaries, grammars and a general printed literature is upward of 260.

Some of the languages are alphabetic, others syllabic, and the number of elements in alphabets and syllabaries differs widely. In English, the number of capitals, small letters, punctuations and other signs used in ordinary literature is about 77; while in many other languages, widely used, the number of orthographic, orthoepic and typographic signs, as used in grammars and ordinary literature, greatly exceeds this number, sometimes being as many as 150.

Very often an author does not confine himself to his own language, but introduces texts in a type peculiar to each. For example, one standard modern grammar presents texts in five languages, another in seven languages.

It is obvious that when foreign texts are quoted they should be fully represented by point signs, having the same name and meaning as the signs used in the texts. It therefore appears that a sufficiency of raw code material is a matter of first importance.

CODE MATERIAL.

The only Braille generator base ⠿ furnishes sixty-three signs, comprising from one to six points.

It has often been said that the Braille system is universal, and many people have an impression that a Braille code made for one language will suit any other language. As each of the 63 signs must be allotted to a specific use, how can any code so formed be adapted to the typography of another language, having a greater number of letters and other signs and different rules of practice? How can an English alphabet be applied to the alphabets of other languages having more letters than English?

What can be done with 63 signs in the case of one language that has 28 letters, twenty-two of which have four forms, six of which have two forms, the total of letters being 100, and the orthographic, orthoepic and typographic signs employed being 50 or more, thus requiring a code of at least 150 signs?

The following are instances of anomalous practice due to deficiency in Braille code material: the omission of capitals; the use of a so-called capital sign before a small letter in the place where a capital would be used if one were at hand; the lack of a complete sequence in a given class of signs, as in the union of a letter and an accent mark to form *one* sign within the limits of a *single* cell (in this case, the raw material runs out, and then *two* signs are required, one for the letter and the other for the accent); in Braille music there is no bar, although it has been used in the staff notation since the beginning of the twelfth century; the representation of the time values of the eight notes by four signs, one sign being used to represent two values, a whole note and the sixteenth, etc.; the values of rests being represented in the same incorrect manner.

Any code that may be constructed with insufficient code material, no matter how promising it may at first seem to be, will sooner or later be superseded by a better code, based upon a large and suitable code material.

The real cause of impermanence is to be found in the system itself. The only adequate tests of the sufficiency of any code and of its right to be, are:

1. The amount of its code material.
2. The completeness of the arrangement of the code materials necessary to meet the various requirements of both writing and printing.

The five generator bases : :: ::: :::: ::::: of the New York Point System furnish upward of 350 signs, and a careful consideration of the nature of the sense of touch and the requirements of many languages, ancient and modern, in respect to their visual typography, both general and special, and of conditions incident to both writing and printing, conclusively shows that the code material furnished by the New York Point System is ample for all purposes, and that it can be readily adapted to conform to the rules and practice of any language.

Evidence that the Braille codes are unsatisfactory is found in the constant attempts that are made to improve them. No increase, however, in code material and consequent enlarged expression has been made. In fact, such improvement is impossible. The effort has therefore been to reduce space by cutting down the Braille spaces separating letters, words and lines to what is improperly called "the New York interval." The letter, word and line spaces that are proper in the New York System, two points deep, are not proper in a system in which the signs are three points deep.

CODE CONSTRUCTION.

An attempt at condensing Braille has recently appeared, which affords new proof of the unsatisfactory and schismatic character of the Braille.

Examples of this variety of Braille apparently effect a gain of 22 per cent. over regular Braille. It may be assumed that the general fitness of this new variety of Braille in writing and printing has been fully demonstrated, and that the important advantage of 22 per cent. over regular Braille will cause its general adoption and the ultimate retirement of the original Braille, and of its variants the English and American Braille.

In the example of close Braille, longer lines and 79 per cent. more contractions are used than in the New York Point. No comparison of measurements made of matter in different systems will correctly show the space relations, unless the composition is substantially the same, as also the length of the lines.

Contests between the Braille systems must be settled among the Braille factions, and if this is ever done, the Braille material must still be greatly increased before a Braille code suited to the requirements of any language can be properly made. The facts as to the origin of this close Braille ought to be made known.

1. Who is responsible for it ?
2. Where and by whom was the apparatus for embossing it constructed ?
3. Did any members of the Uniform Type Committee know of it, or take any part in bringing it forward ?
4. As reduction of the Braille scale and exaggeration of the New York Point scale have the same effect, is the close Braille complementary to the exaggerated New York Point, referred to later on ?

Whatever may be the minimum measure which the vertical structure will permit for point centers and for letter, word and line spaces, the structure of New York Point will permit the use of a still smaller measure for point centers and for letter, word and line spaces. This fact should be kept in mind in considering any physiological data that may be adduced in support of the close Braille structure.

Accuracy in all embossed books cannot be too strongly insisted upon, and if there be a tendency toward error in the structure of a code, it is a matter of serious importance, as it would render the work on embossing machines and in proof reading more difficult.

CORRECTIONS.

It has been said that errors are much less likely to occur in Braille than in New York Point, and that they can be corrected more easily in Braille, for the reason that Braille errors occur within the limits of a cell.

An examination of eleven recent publications from authoritative sources will throw some light on this subject. The books include parts of the Bible, two in French and German, and text-books in music, literature and mathematics.

	1	2	3	4	5	6	7	8	9	10	11
Number of pages..	22	6	12	5	6	12	142	14	114	137	24
Misspellings.......	7	1	3	..	..	..	13	36	32	94	44
Misplaced signs....	6	63	..	81	73	16	..	17	..	..	55
Broken syllables...	114	25	37	25	28	15	..	..	..	..	..
Wrong syllabication	4	..	..	1	..	..	10	..	11	15	..
Wrong indication of sound...........	31	5	24	5	3	10	..	..	..	..	..
Broken digraphs and diphthongs..	84	23	26	24	26	7	..	35	..	..	..
Wrong spacing....	564	583	80	768	607	808	1	302	3	22	355
Wrong punctuation	..	..	..	..	..	..	6	..	..	..	41
Omission of emphasis.............	..	..	..	..	..	..	..	..	7	..	..

A cursory examination of fourteen pages of a standard mathematical text-book in Braille shows:

Misspellings	36
Wrong syllabication	2
Wrong spacings	302
Signs in wrong part of the cell	17
Rupture of digraphs and diphthongs	35
Errors in problems	6
Total	398

An examination of six pieces of piano music in Braille, prepared by experts and recently issued, shows numerous cases of disregard of rules; omissions of octave signs, notes, rests, repeat signs, slurs, word signs, dynamic marks, bars, double bars and ties; and the wrong use of slurs, repeats, fingering, time values, ties, slurs and accidentals.

All the books examined have high educational value. Those who directed the publication have had large experience, and the practical work was of course intrusted to transcribers, operators and proof readers who were familiar with it.

Of the fifty-three errors in No. 9, 43, or 81 per cent., could not be corrected within the area in which the error occurred, so that a correction would require some additional space. This is doubtless true in all of the examples, and in some of them to a greater degree than in No. 9.

The total number of pages examined was	494
Number of misspacings	4,093
Number of other errors	1,183

Number of errors noted in the two pages of close Braille was:

Number of misspacings	63
Number of other errors	30
Total	93

At this rate the number of errors in 494 pages of close Braille would be:

Misspacings	15,561
Other errors	7,410
Total	22,971

Misspacing is a serious defect. Too little space produces confusion by bringing letters and words too closely together, while too much spacing breaks the structure of syllables, words and sentences.

An inspection of Lessing's "Minna von Barnhelm" in American Braille shows the following conditions:

Imperfect title page.

The preface, introduction, notes, vocabulary and head-lines are all omitted.

The fourth act contains imperfect German not found in dictionaries, also French words without accents, all of which renders the omission of notes inexcusable.

In the 137 pages, this book shows 94 wrong spellings, 22 wrong spacings, 15 wrong divisions at the end of lines, and four defective print, making a total of 135.

An inspection of "Glück Auf," by Müller & Wenckebach, in American Braille, shows the following conditions:

Omission of name of publisher, date of copyright, greeting on the first page of book, preface, table of contents, introduction, map, notes, Fragen, vocabulary and headlines.

Out of 258 ink print pages, only 126 have been transcribed.

These errors are found in the embossed part: 32 wrong spellings, 3 wrong spacings, 11 wrong division of words on end of lines, 7 wrong representations of text in ink print, making a total of 53 errors.

Of the 53 errors, 41, or 81 per cent., cannot be corrected in the same space.

Braillists generally emphasize the importance of fidelity to correct usage.

One authority says: "The ordinary rules of grammar should be closely followed; hence correct syllabication must be observed, and a monosyllable should never be divided. Strict conformity to general grammatical laws, and the special rules preceding, are essential to a correct use of the American Braille, and the use of signs in any other way than that hereby authorized is as inelegant and incorrect as similar changes in ordinary writing." And yet the English language, as presented in both American and English Braille practice, is literally grotesque.

COST.

The latest large publication in American Braille is the Bible, and a comparison of this book with the Bible in New York Point, which was printed about twenty years ago, affords a good test of the relative economic values of New York Point and Braille, as determined by their inherent structure.

The number of Braille volumes in the New Testament complete is five.

The number of volumes for 236 chapters of the Old Testament that have been printed is four. At this rate the 683 remaining chapters will require twelve volumes, making sixteen volumes for the Old Testament. Adding the five volumes for the New Testament, the entire Bible would contain twenty-one volumes.

Probable weight of Old Testament	84 pounds
Weight of New Testament	26¾ pounds
Total weight of American Braille Bible	110¾ pounds
Total weight of New York Point Bible	80 pounds
Excess in Braille	30¾ pounds, or 38 per cent.

The number of volumes in the New York Point Bible is eleven, and the number of contractions used in the composition is eleven, while the contractions used in the American Braille are forty-five. An equivalent use of contractions in New York Point would make the difference in weight in favor of New York Point about 50 per cent.

Evidence furnished by books in English Braille shows similar violations of grammatical structure by the omission of capitals and breaking of words, diphthongs, digraphs and syllables as are shown in American Braille.

The Book of St. John, revised version, in English Braille, highly condensed by contractions, word signs and omission of word spaces, has 9,384 square inches of page area. The same book, King James version, in New York Point, in one-side style, with eleven contractions and full spacing, has 4,964 square inches of page area. The excess in English Braille is 89 per cent.

In two-side print, New York method, this book will require only 3,542 square inches, or twenty-nine pages on fifteen leaves. In two-side English Braille, the number of leaves is forty-eight. These relations will be found in other publications in the two systems.

It appears from the foregoing that there is a great difference between these codes in the matter of cost, and some evidence derived from actual business transactions will be of interest.

With the purpose of securing the largest possible returns for the outlay, the Society for Providing Evangelical Religious Literature for the Blind adopted a by-law, providing that books should be printed in that punctographic system in which the work could be done at the least cost, the system to have been in general use in the schools of this country for the fifteen years next preceding the publication, and all estimates to be for similar composition, style of printing, quality and weight of paper and binding.

The following is an estimate submitted for the same book in New York Point and in American Braille:

	N. Y. Point.	*Am. Braille.*
Embossing, 458 plates	$229	. . . .
" 700 "	. . .	$350 00
Paper	750	1,125 00
Presswork	96	144 00
Binding	1,050	1,575 00
Wrapping paper	10	25 00
Twine	3	7 50
Labor	50	75 00
Drayage	50	75 00
	$2,238	$3,376 50
		2,238 00
Excess cost of American Braille . . .		$1,138 50,
		or 50.8 per cent.

In view of the foregoing facts, one may ask whether books in visual type showing these conditions of inaccuracy and of excessive cost would be used in the common and high schools, or be admitted to the shelves of circulating and reference libraries. Assuredly, they would not.

In the usual course of ordinary business, discriminating authors, publishers and purchasers insist upon accuracy, fidelity to text and satisfactory execution. I am constrained most regretfully to say that if the rules that govern the recognition, purchase and acceptance of visual books for use in schools and libraries were applied to embossed books, the great majority of those now used in schools and libraries would be excluded, by reason of violation of good usage in English, and on account of errors and poor execution.

TYPE TESTS.

Tests of speed and of accuracy in reading can do little more than help to determine the nature and efficiency of methods of teaching reading and writing, and also personal capacity as affected by study and practice. The following points will be of interest in connection with any tests:

1. What part of such test papers was selected from books, and if so, what books ?

2. Was the whole or any part of the test papers specially made for this purpose ?

3. Total number of words in the word list.

4. Number and per cent. of monosyllables.

5. Number and per cent. of dissyllables.

6. Number and per cent. of trisyllables.

7. Number and per cent. of words of more than three syllables ?

8. Would short words favor any system, and if so, which ?

9. The normal proportion of the first ten letters of the alphabet in common English, a to j inclusive, is about 45 per cent., and as they are only two points deep, in Braille, they have to this extent the advantages of the New York Point System. Does the number of these letters in the word tests exceed this proportion ?

10. The normal proportion of the letters, a, e, l, s and t, in common English is about 39 per cent. In American Braille

two of them have one point each, two have two points, one has three points, and they each occupy the same side of the cell.

Does the number of these letters in the word and letter tests vary from this proportion ?

11. In English the normal proportion of the letters a, c, d, e, f, g, h, i, o, r, t, is 65 per cent.

Does the proportion in the letter and word tests vary from normal ?

Is the proportion of each letter other than a, e, l, s and t normal ?

Does the report on tests made give any data on these matters ?

In American Braille, the word structure is broken when one or more of these five letters occurs, some of the spaces being much wider than others; for example, in the word slate, the spaces are uniform but wide. In the word found, the spaces are uniform but narrow.

In the word illustrative, these letters produce six wide and five narrow letter spaces and destroy its unity as a whole. The second, third and fourth syllables are broken, the letter groups being like this: il l us t ra t ive. In test material this disjoint structure may be made to either help or hinder the reader.

Would a small relative proportion of short words arranged in regular columns, separated by a marked space, facilitate reading in Braille ?

Were the tests made at Batavia and at Perkins in reading letters having a large or small number of points, and the tests for reading signs, alleged to be horizontal and vertical, also made at other schools ? If so, what schools and with what results ?

What were these tests and what was the actual record in number of minutes and in number of errors on which the 13.4 per cent. for time and 9.3 per cent. for errors in one case, and 9.6 per cent for time and 16.3 per cent. for errors in the other, were based ? (See the Valentin Haüy for May, 1913.)

CAPITALS.

Capitals are not used in any Braille system, for the reason that the sixty-three signs are not sufficient to provide capitals, small letters and all other signs.

In order to meet the demand for capitals, the only recourse was to adopt a sign, call it a capital sign, and place it before the small letter in the place of which a true capital should be used.

The selected sign has two points, precisely the same as the period. This practice represented in visual type would be to use a period to mark the end of a sentence and also the capitalization of the next initial word.

This anomalous recourse fails, however, for it does not always properly indicate capitalization, as will be seen in the case of an initial diphthong which in type appears as a unit, so that both letters are capitalized. Now, as the diphthongs Æ, Œ, require two distinct signs in Braille, it follows that the effect of the capital sign terminates with the initial letter. This fact is very material in the construction of codes for languages in which the diphthongs frequently appear in proper names, and at the beginning of sentences.

Another anomaly is seen in the Braille rule that "the capital sign preceding a contraction capitalizes only the first letter of the contraction." Capitalization of a letter which does not appear is a novelty in literature. One capital sign, however, was not enough, and so American Braille provides a second one, "Letters preceded by points 5 and 6 are capitalized algebraically." In Braille, this sign is among those which are discarded in close Braille.

The capital sign imposes no added task on the Braille reader, because it has already been learned as the period. In New York Point a full set of capitals is provided, each of which is on the fourth base, and contains the small letter from which it is derived by a logical and simple method of enlargement, thus:

When the small letter ends with a point in the upper row, as in the letter a, add the suffix in the lower row.

When the small letter ends with a point in the lower row, as in c, or in both upper and lower rows, as in d, add the suffix in the upper row.

It has been said by the advocates of the uncapitalized Braille codes that these fourth base signs are too large and that they are too hard to learn.

As a matter of fact, difference of size is the main distinction between small letters and capitals, and the difference in size between New York capitals and small letters observes this distinction. Moreover, they are no larger than they must be, while they are at the same time of uniform size.

That these fourth base signs can be readily learned is shown by the fact that they have been for years used in music, and that recent capitalized books in English, Latin, French and German are used with facility.

A blind person having intelligence, a moderate degree of curiosity, and ambition to learn, in whose hands a capitalized book is placed, would, with a previous knowledge of the small letters, be able to correctly name the capital beginning a word, and in this way acquire a working knowledge of the capitals without assistance.

Furthermore, in addition to their office in literature, they furnish both mental and tactual stimuli, and for these reasons they are of special value to teachers and to the blind individually.

A striking effect which has been unwittingly caused by the disparagement of these capitals is that it creates a test of tactual mediocrity. Those who read them add to their knowledge and increase their powers. Those who do not read them lack this knowledge and the power which it creates.

Neither Haüy, who printed the first embossed book, nor Braille, Alston, Gaul, Howe or Moon used capitals. The vast majority of embossed books used in schools have no capitals, and while it is the present practice to employ capitals in New York Point publications, they do not appear in the earlier publications.

Now, as the proportion of capitals to the small letters in common use is only about 2 per cent., it is clear that unless special practice has been had on the capitals, more time will be required to read a given amount of matter in which they occur than would be required to read the same matter in New York Point if a capital sign were used as in Braille. Does the test material contain more than the normal 2 per cent. proportion of capitals ? Are the fourth base capitals used in the New York word test examples ? Was there any New York Point test material provided with a capital sign ?

During the recent tests at the New York school, demonstrations were given at the request of the agents in reading German, in which capitals are frequent, in writing and reading literary texts, in reading music, copying an unfamiliar tune selected at the moment by one of the agents, the copyist reading the raised music with one hand and writing it on the kleidograph with the other. The writing of the music occupied a little over seven minutes, and the reading a little over four minutes. Have similar demonstrations been made in other schools ?

At the beginning of the tests in the New York school, a glance at the New York Point sheets sufficed to show that it was on an exaggerated scale. With the consent of the agents, an example of the New York Point test material was embossed on a metal plate in the scale which has been in common use since 1894, and an impression furnished to the agents. A comparison of the space occupied in this scale with the exaggerated scale in the test material showed a difference of 39 per cent. against the New York Point. The following record was made at the time and a copy filed with the agents:

MEMORANDUM.

MAY 20, 1912.

A hearing of the sub-committee of the Uniform Type Committee was held May 20, 1912, at the New York Institution for the Blind. There were present Miss Howard, Mrs. E. C. Fowler, Mr. E. B. Tewksbury and Mr. W. B. Wait.

Miss Howard explained the plan that had been adopted by the committee, and also the contents and arrangement of the examples which had been prepared by the committee, to be read and written for the purpose of securing data relating to the construction, characteristics and comparative merits of the New York Point System and the American Braille.

Attention having been called to the fact that the examples were on an enlarged scale, and not on the scale common to the New York Point, and which constitutes one of its most essential and valuable features, the sub-committee stated that the question of enlarging the scale had given rise to considerable discussion by the committee, one of the reasons stated being that the examples might be more easily read by adult persons. It was also stated that the apparatus employed to emboss these examples upon this enlarged scale had been specially constructed in Boston, and that the plates had been made and embossing done at the Perkins School for the Blind.

It was pointed out to the sub-committee that thousands of adult blind people throughout the United States had been for years reading the publications of the Ziegler Magazine, the Sunday School Lessons, the publications of the Xavier Society, and the large number of publications of the American Printing House for the Blind, as well as other publishing organizations, as printed in the normal standard New York Point. A comparison of one of the enlarged examples embossed on the stereograph in New York Point showed that the enlarged scale extended the aggregate length of all the lines in the enlarged example 16 per cent. over the aggregate length of lines in normal New York Point. This requires the finger of the reader to pass over more space, and to require more time in so doing in the enlarged scale than would be required if the finger passed over the same matter in the normal New York Point System.

It was also shown that increase of scale not only unnecessarily increased the space required for the signs, but also the spaces required between letters, words and lines, the whole effect being to increase the area taken by the selection in the enlarged specimen of the committee 39 per cent. over that which the same matter requires in standard New York Point practice.

Furthermore, the purpose for which the Uniform Type Committee was appointed was to study and compare existing systems, and not to alter existing systems or to devise new ones.

For these reasons Mr. Tewksbury and Mr. Wait object to the plan of the committee and to the test materials as prepared, but were willing that the pupils should read the examples with the understanding that they are not in fact New York Point, and that the results obtained cannot be taken as equivalent to the results that would be obtained if the examples were in genuine standard New York Point.

(Signed) WM. B. WAIT, *Em. Prin.*

(Signed) EVERETT B. TEWKSBURY, *Principal.*

After the New York test, what change, if any, was made in the test material? Does the report note the fact that an experienced proof reader furnished the agents with a statement to the effect that from 25 per cent. to 30 per cent. more matter could be covered in the same time in proof-reading New York Point than in Braille? Why did not the tests include reading and writing music, in languages other than English, and in the adaptation of the systems to mathematical work?

PRINTING.

Originally, and for many years, punctography was confined almost entirely to writing by means of a stylet and tablet; but with the growth of schools, the diffusion of knowledge, the opening of circulating libraries, and the free carriage of embossed reading matter, the demand for books can only be supplied by the power printing press.

Printing on one side of the leaf has been practiced for many years and is still the chief method in use.

In general, up to this time, only one side of a leaf has been used. In the early part of 1907, I wrote to Mr. B. B. Huntoon, Superintendent of the American Printing House for the Blind, on the importance of reducing the cost of books; and as the best means of increasing the supply, suggested printing on both sides of the leaf as an inviting and promising field of endeavor. Since that time the subject has received much attention, and great progress has been made.

There are three methods of two-side printing. In one method a single metal plate is used, each alternate line being embossed on each side of the plate. In printing, the points of one side of the plate are forced into the rubber, while the other page is formed by pressing the paper into the cavities, a process which consumes much power and rapidly disintegrates the rubber impression blanket. The points made by entering the rubber will generally be complete, while those formed in the cavities will be broken at the apex, the cause being the escape of a tiny volume of air in the cavities, which bursts through the paper at the apex of the points, under the heavy pressure required to force the paper into the cavities.

Absolute perfection in the impression blanket, in the press and in the operation will not prevent this result.

This method requires fairly heavy paper, which must be dampened, and the speed must be slow enough to permit the paper to fully fill the cavities.

In another method two light plates, 7-1000 of an inch in thickness, are embossed, first on one side and then on the other, so that a leaf placed between them will receive an impression on both sides. In this method great care must be taken to maintain perfect matriculation of the plates. Paper should neither be too heavy nor too light to properly fill the cavities under the pressure of the corresponding points. An ever-present danger in this process is the likelihood that points in the paper will collapse from the suction caused by the withdrawal of the embossing metal points. Here, also, as in the method first referred to, absolute perfection of plates will afford no guarantee against this defect.

The great liability to injury of such light plates, which for book work must be preserved, and handled by different people in edition after edition, should be considered in connection with the twin plate method.

During the last seven years I have designed and constructed four machines for the purpose of printing on both sides of the leaf. Each plate carries two pages of 60, 64 or 72 lines. Each of the first three machines had two plate and two impression cylinders. In the first press each plate cylinder carries four plates, giving eight pages to a revolution. In the last three machines each plate cylinder carries two plates each and gives four pages per revolution. The last press designed has only two cylinders.

Each press is driven by a motor. In performance the first, or eight-plate machine, at 1,500 revolutions per hour, requires one horsepower. The No. 2, or four-plate machine, at 1,440 revolutions per hour, requires 5-10 horsepower; No. 3, at 1,680 revolutions per hour, requires plus 3-10 horsepower, and No. 4, at 1,680 revolutions per hour, requires minus 3-10 horsepower.

Satisfactory impressions have been made at these speeds with both light and heavy paper, damp and dry.

It is my opinion that the epoch of two-side printing on a large and practicable basis has now begun, and further, that the compression of the paper between projecting metal points and an opposing sheet or blanket of rubber, which in one-side work has been long practiced, is the only dependable method of embossed printing.

BOOKBINDING.

This is the final step in the bookmaking art. The method now in vogue is substantially the same as that employed in binding ink-print books, although conditions in embossed sheets are entirely different from those in letterpress. To the ordinary observer, the binding of an embossed book looks well and strong, and it can be said that the binding of embossed books in the United States is superior to any in the world.

The books are generally heavy, weighing from four to eight pounds, and it is recognized that the binding is not only unsatisfactory, but also too expensive. The binding very largely determines the life of a book, and hence as an economic factor may, like printing, be of more importance than the question of space as influenced by code structure.

In dealing with the problems of printing, I was led some three years ago to take up this subject, the purpose being to secure a strong, durable and presentable binding at a reduced cost. Details cannot be entered upon here, but it can be said that I have devised a method which has, in a marked degree, accomplished both these purposes.

It is now almost fifty years since I began my work in this field by originating and publishing the New York Point System, and it is a source of great satisfaction to have been able, as the years have passed, to devise the means by which writing can be easily practiced, books be made less costly, and by which the life of these precious things can be prolonged.

UNIFORM TYPE.

In regard to the practicability of a uniform type, I would say that such a type must be of universal application, and that the only basis of such uniformity will be found in those primary elements and features that are common to all languages. The only elements that are common to all languages are the sounds of speech, and it therefore follows that they constitute the only basis of a uniform type, either visual or tactual. Such a phonic system must have a suitable typography coexistent with its requirements and altogether different from alphabetic typograghy. The orderly development of a universal phonic typography is now going on, and is being used by authors in connection with usual typography.

The phonic code will have a much greater number of signs than the alphabetic code, but the New York code material has been found ample to meet all requirements.

WILLIAM B. WAIT,
Emeritus Principal.
New York Institute for the Education of the Blind.

HV1675 c.1
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Wait, William B.
Phases of punctography...

Date Due

HV1675 c.1
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